

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-121820

(43)Date of publication of application : 30.04.1999

(51)Int.Cl.

H01L 41/083

H01L 41/187

H02N 2/00

(21)Application number : 09-277434

(71)Applicant : HITACHI LTD

(22)Date of filing : 09.10.1997

(72)Inventor : SUZUKI HIDEO

SHIONO OSAMU

WATABIKI SEIJI

MIYATA MOTUYUKI

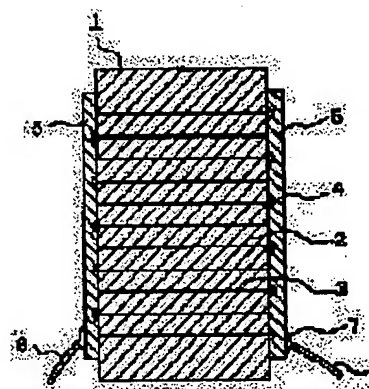
HAYASHIBARA MITSUO

## (54) LAMINATED PIEZOELECTRIC ACTUATOR

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a laminated piezoelectric actuator having response consisting with reliability.

**SOLUTION:** The laminated piezoelectric actuator element 1 comprises a piezoelectric ceramic 2 laminated and sintered by an internal electrode 3 composed of a silver palladium alloy material alloyed with 70 to 50 weight % of silver and 30 to 50 weight % of palladium doped with the ceramic material for piezoelectric effect in a range of 2 to 12 weight % of the total weight of the silver palladium alloy material and the ceramic material for piezoelectric effect, a close characteristic of shrinkage of the internal electrode 3 and the piezoelectric ceramic 2 makes it possible to avoid an interfacial separation, and an adequate resistance of the internal electrode 3 secures the responsiveness of the piezoelectric element 1.



## LEGAL STATUS

[Date of request for examination]

21.02.2001

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]